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THE POSTULATES OF A SELF-CRITICAL EPISTEMOLOGY.¹

THE purpose of this paper is to present a set of principles or postulates from which a self-critical theory of knowledge can be derived. Its completion would demand the demonstration that this end is really thereby attained, but the satisfaction of doing this must at present be foregone because of lack of space. The first step will consist in the illustration and determination of the meaning of self-criticism. A characteristic example of the recognition of the demand that a theory of knowledge must be self-critical is found in a typical criticism which the absolutist makes of pragmatism.² The crux of this criticism is, that pragmatism, as the epistemology derived from the theory of evolution, presupposes that this theory is true absolutely, and, therefore, in a sense different from that definition of truth which is explicitly developed by pragmatism itself. The same criticism is brought against the pragmatic theory of knowledge taken as a whole and as the corollary of evolution.³

This attack employs and discloses one of the constituents or 'dimensions' of self-criticism, namely, the demand for self-consistency, yet this can be further differentiated. Thus the criticism consists partly in the claim that pragmatism is inconsistent in that it is, seemingly, compelled to use a term, to characterize itself, in a sense different from its own definition of it. *Consistent use of terms is, then, one 'dimension' of self-criticism.*

But further analysis of the criticism shows that still two other 'dimensions' may be differentiated. The purpose of the attack is to demonstrate the absolute truth of the absolutistic position.

¹ This paper was read before the American Philosophical Association at its meeting in Baltimore, December 28-31, 1908; in preparing it for publication some expansions and rearrangements have been introduced.

² Josiah Royce, "The Eternal and the Practical," presidential address, 1903, *PHILOS. REVIEW*, Vol. XIII, pp. 113 ff.

³ To decide whether this criticism is valid or not is unnecessary at this point; subsequently it will be shown not to be so.

This end is thought to be attained by basing the attack itself on a principle, which, though it is itself accepted without proof and, therefore, really only assumed or postulated, is nevertheless to be regarded, by its own implication, as a *criterion of absolute truth*. This principle is that '*that is absolutely true which is implied¹ by its own denial*,' and this is applied in the attack as follows: Pragmatism, as a theory making explicit denial of absolute truth, is held (1) to presuppose, in order that this denial may be well grounded, that both it itself as a whole and evolution are absolutely true, accordingly, (2) to refute itself, and so (3) indirectly to demand and confirm the absolutistic position. *The second meaning of self-consistency and second 'dimension' of self-criticism is, then, freedom from contradiction either of part by part, or of part by whole, or conversely.*

However, this application is not the most significant feature concerning this assumed criterion of absolute truth; this consists, rather, in the fact that, *as a criterion of truth, it itself presupposes that it should apply to itself and in this sense both presuppose and imply itself,² of course, without contradiction.* This demand of self-application is implied; for, if the principle be a criterion of truth, it is implied by itself that it should be a true criterion. The same demand is implied by a number of other criteria, among them those of so-called self-evidence;³ each of these as a criterion of truth should apply to itself as supposedly true, but whether such an application results successfully either with them or with the above 'indirect' criterion may at present be left undetermined; for the significant feature at this point is the fact that by all of these criteria still another principle is presupposed, namely, that that which is true⁴ should apply to itself, or, as this may be put briefly, that '*that is true which presupposes itself*.'

Thus there is disclosed a third characteristic necessary to a theory

¹ 'Presuppose' would be a better term, as will be shown presently.

² Presuppose can be defined in terms of implication as follows: If '*p* implies *q*' implies that '*q* implies *p*,' then *p* is the presupposition of *q*. Subsequently, then, 'presuppose' will be used to designate the logical antecedence, not priority, of one or more propositions (premises) to others, and 'imply' the converse relation of logical consequence. Cf. Russell, *Principles of Mathematics*, Part I, Chaps. II and III.

³ See the analysis of this, pp. 619-24.

⁴ In what sense is yet to be determined.

of knowledge in order that it may be self-critical,—a third 'dimension' ; it must apply to itself, i. e., presuppose and imply itself.

The justification and bearing of this self-implied demand are made clear by even a slight inspection of the purpose and pretensions of a theory of knowledge. Such a theory is the result of the endeavor to ascertain, let us say, the character of the origin, the purpose, the validity, and the extent of knowledge ; but this knowledge *a fortiori* includes the theory ; therefore the theory must apply to itself, and without contradiction, if it be true.

The connection of this with the logic of the proper infinite¹ is important. A partial definition of the proper infinite, and one demanded by a self-critical epistemology, is that it is a whole or class which cannot be reached by mathematical induction, and that it is a whole such that it is similar to any one of its proper parts and that, while part and whole imply each other, the former is logically prior to (presupposes) the latter. Quite analogously in a logical sense, a theory of knowledge, as a conceptual statement referring to existents and subsistents,² but concerning all knowledge, is a statement concerning itself as a part ; presupposed by all knowledge, including itself, it again presupposes itself, or will do this if it is really self-critical, and so on, in an infinite regress.³ *Logically, i. e., as a subsistent, it is a special case of the proper infinite.*

Now the bearing of this self-implied demand of self-application is two-fold. In the first place, supposing such an epistemology as presupposes itself to have been attained, there is, then, no principle which is presupposed by it which is not included in the list of propositions that make up its foundation. Conversely, if there are principles which an epistemology actually though tacitly presupposes, but which are not included in some way in

¹ Cf. Russell in various places (see his index) but especially Chaps. XVII, XVIII, XLII, XLIII, and pages 260, and 356-360.

² Subsistence = Being ; and Being may be defined with Russell (*Principles*, p. 449) as "that which belongs to . . . every possible object of thought, — to all propositions" true or false.

³ This feature of self-criticism and its bearing will be recurred to later.

its own list, then, either such an epistemology is not ultimate, and is conditioned externally, and is perhaps self-refuting, *or* it must be so extended as to finally include such principles in such a way that, together with others, they will give a self-critical set or system. *For a theory of knowledge must be based on presuppositions, and these must be either such as presuppose other propositions or such a set as presupposes only itself.*

In the second place, then, there is the practical question as to what method shall be pursued for the discovery of those propositions which form the foundation of a self-critical system. Is the above statement that a theory of knowledge must be based on presuppositions, defined as principles assumed and not proved, although possibly provable, incorrect, and can a method which eliminates this necessity be employed? In deciding these questions a distinction must be made between the general necessity of making assumptions, and that specific necessity as it concerns an epistemology. In the latter case, the assertion concerns the endeavor to attain a body of knowledge stated in propositional form. Whether or not such knowledge is necessary is a different question, although only specifically so, from that as to the general necessity of making assumptions, but yet one to be answered only affirmatively. For knowledge in general is necessitated, for human beings, as a means of adaptation, as a condition for survival in the struggle for existence, and so, consequently, are those inter-individual, social means furnished by formulated knowledge, including epistemology and its presuppositions, as specific kinds of knowledge. For these general reasons, then, there must be presuppositions, and, in the case of an epistemology, both for these and for specific reasons, unless some method of avoiding them is discoverable there is the same necessity.

As concerns this possibility, the position has been taken¹ that a presuppositionless epistemology is possible; but it is clear that this position is itself not without presuppositions, but, rather, requires these for its own establishment. It is thus a position which presupposes its own contradictory. *Taking this contradictory in the form 'that there must be presuppositions,' a principle*

¹ Ladd, *Philosophy of Knowledge*, p. 268.

is given which is presupposed both by itself and by its own denial,¹ and which, grounded in this way by itself, makes clear the logical justification, in the case of every proposition or propositionally formulated body of knowledge, of demanding proof or establishment.

What ways are open, then, for meeting this demand, and do any of them confirm or refute the above principle? Four traditional means of establishment are at our disposal and require examination; these are deduction, induction, self-evidence, and hypothesis and confirmation. To ground an epistemology purely deductively is, now, impossible; for the *consistent* use of this method demands an infinite regress of premises which cannot be completed. Therefore at some point propositions are accepted hypothetically, *i. e.*, are postulated, and our principle is confirmed. A similar result is given by the examination of induction in the strict sense of the term. For, on the one hand, this method is itself, as is well known, based on the assumption of the regularity of nature or of unique functional correlation; on the other, an examination of the inductive sciences shows that there is frequently the opportunity and necessity for an optional interpretation, by different assumptions, of the same data.² Such an interpretation is necessitated both because of the grossness of nature and of the coarseness of our senses and of even their instrumental aids, and is determined in one direction or another by the emotional make-up of the thinker himself. Thus induction also demands certain assumptions, neither proved, nor, seemingly, provable by experiment, etc., and our principle is once more confirmed.

Can it, however, now be invalidated by the use of a method by which, as it has been held, the absolute truth of certain principles can be discovered, so that these can be employed deductively and with a stop put to the infinite regress, and as unequivocal principles of interpretation? That there is such a method, namely, that of self-evidence, is, of course, frequently held, for it

¹ These are found subsequently to be logical criteria of self-evidence.

² The inability of experimental methods to decide between two or more possible interpretations is recognized in many cases, as, for example, in the various geometries, and in the *actio in distans* versus medium controversy. Cf. Campbell, *Modern Electrical Theory*, 1907, in various places.

has been often used. Now, as preliminary to the discussion of this third possible method of grounding, for the sake of clarity a distinction may now be made,—for it is justified later,—between psychological and logical self-evidence. Investigation shows that the motive underlying the acceptance of all psychological criteria of self-evidence is the (absolutistic) conviction that, in order to have truth at all, an absolute truth must be started with, and that such self-evidence is a guarantee of this truth.¹ Further, it shows that all the seemingly different criteria permit of a reduction to three, whereby their real character is revealed: The so-called self-evident (psychological) is really either (1) that whose opposite is inconceivable, or (2) that which is believed in as unconditionally true, or (3) that which has not yet been questioned or is no longer so, giving blind dogmatism or authoritative. Now an interesting and, for this paper, important characteristic of these, as well as of the specific criteria which reduce to them, is the fact that each implies that it should apply to itself.² This becomes clear by considering one typical case, say the norm ‘that that is true whose opposite is inconceivable.’ Clearly nothing can be true by this criterion unless the criterion be true; and if it be true, then, as a true criterion of truth it should be true by itself, for its supposed function is its use at just that point where deduction and induction are impotent. Submitted to this test, however, it fails and refutes itself; for it is not inconceivable that ‘that is true whose opposite is inconceivable,’ should be false. Personally, I can conceive that the inconceivable should be true, and the history of thought confirms the conceivability of my position. The same result is obtained by submitting the other criteria, general and specific, to this, in every case, self-implied test of self-application; all fail to meet it, even boldly asserted self-evidence itself; *they refute themselves and are demonstrated to be in every case only specific instances of a mere claim, of a subjective-holding-to-be-true, and, logically, of an identification, as a tacit postulate, of this conviction with the fact*

¹ This is opposed, of course, to the position that practice and action are possible without absolute truth, or without the knowledge of what is absolute truth. Cf. Postulates VIII and XI.

² Cf. the previous discussion, pp. 616, 617.

of truth. Thus we emerge with a criterion, that of self-application, for distinguishing between psychological and logical criteria of self-evidence ; the former do not apply to themselves ; the latter, if there are such, do or must.

This analysis shows, then, on the one hand, that psychological self-evidence does not do away with the necessity of grounding an epistemology on principles assumed and not proved, and in this sense on presuppositions or postulates ; but, on the other, it has disclosed again an important principle or criterion, namely, *that that is true which presupposes or implies itself.* Leaving undecided for the present in what sense 'true' shall here be taken, inspection further reveals that, just as this principle is itself presupposed by each psychological criterion and by the absolutistic test,¹ *so also does it imply that it must stand its own test ; it must apply to itself.* The result, now, of complying with this demand, is the confirmation of the principle — by itself. Thus, applying the principle to itself, we get : that 'that which applies to (presupposes and implies) itself is true,' is true if it applies to itself. Now it does apply to itself ; for the demand for proof, for its presuppositions, can be made on it, with the result that it is found to presuppose just this 'that there must be presuppositions' ; but this has been found² to presuppose our principle ; therefore *it* presupposes itself. Q. E. D. But it also implies itself: for it is a proposition, and all propositions, whether true or false materially, imply themselves³ as subsistents. Q. E. D.

Taken by itself the principle states a formal implication ; it is applied by substituting for the variable "that" some constant, *i. e.*, some proposition, and making the application. Thus, to illustrate this, we have : that 'that which is self-evident is true,' is true if it is self-evident (which it is not). Propositions so tested are found, then, to be either such as, presupposing themselves, apply to themselves or such as do not. But it is just such an application giving a material implication, that is made in the paragraph above with no contradictory results. *The principle does,*

¹ Cf. the previous discussion, pp. 615, 616.

² Pp. 618, 619.

³ Cf. Russell, *Principles*, Chap. II.

then, presuppose itself materially (Q. E. D.), and now takes the form that '*that which presupposes itself materially is true.*'¹

Taken, now, in its original form, *i. e.*, as stating a formal implication, the principle cannot be denied universally; for submit it to this test, *i. e.*, assert its falsity; then this assertion is either true or false; if it is false, then we have our original principle (Q. E. D.); but, if it be true, then the assertion is either proved, or not proved or provable; if proved, then, in the regress of premises we either get finally to a proposition which presupposes no other than itself materially (Q. E. D.) or to those which presuppose different ones at each step; in the first case we have, then, our original principle presupposed, *though by its own denial*; but likewise in the second case *also*; for, since the infinite regress cannot be completed, *if* there is to be a true conclusion (namely, this assertion of the falsity of the original formally universal principle) *somewhere an assumption must be made which is true although not proved; but there is thus presupposed another and new principle, namely, that truth is independent of proof*; now this is a principle which is found (1) to apply to itself, *i. e.*, is itself independent of proof, and thus (2) to presuppose itself, and (3) to be implied by its own denial; in this way, therefore, — indirectly, — *our original principle is again presupposed by its own denial* (Q. E. D.). It cannot, then, be denied universally (Q. E. D.). If it is denied, this can be done only particularly, giving 'some that presupposes itself is not true' (materially), with, of course, the subcontrary true, that 'some that presupposes itself is true (materially).' But this is to be distinguished from '*that which presupposes itself materially is true*' (materially),² *which is a principle presupposed materially both by itself and by its denial both universal and particular.*

This analysis, and that which preceded it, discloses, then, three interesting and important principles, namely:

¹ Clear examples of propositions which presuppose themselves materially are: 'There must be postulates,' and 'Knowledge must not modify its object,' — our first and third postulates; but every other postulate of the fifteen subsequently submitted does the same.

² Subsequently, for brevity's sake, this principle will be formulated without the use of the adverb, but is to be understood as if the adverb were expressed.

- I. *That which presupposes itself is true.*
- II. *That which is presupposed by its own denial is true.*
- III. *Truth is independent of proof.*

In each the presupposition must be taken to be 'material,' and the question now is, in what sense 'true' shall be understood. This is illustrated and determined by considering the principle, similar to II, and previously discussed,¹ *that 'that is absolutely true which is implied by its own denial.'* This demands, too, that, as supposedly a criterion of absolute truth, it should apply to itself as a true criterion; but the attempt to fulfill this demand shows that *as so formulated* the principle refutes itself, but that the substitution of 'conditionally' for 'absolutely,' meaning by this (1) conditioned by other propositions, *i. e.*, implied,² and (2) tentatively, *i. e.*, admitting the possibility of error, gives a principle which does apply to itself. *It is this definition of 'true,' then, that must be accepted³ in principles I and II, and also in III, although this cannot be demonstrated here.⁴*

An interesting and significant characteristic of each of these three principles is that each is presupposed by the other two and that each is true both by the self-implied test of itself and of each of the others.⁵ For these reasons the first two are to be regarded as logical criteria of self-evidence in accordance with

¹ Pp. 615, 616.

² But since the implication can be only discovered, *i. e.*, since it is a felt implication, there is in this process also a liability to error, a tentativeness, a 'conditionedness'; yet on the other hand knowledge of the implication may be quite true, since truth is independent of truth. (Cf. Postulates VIII and XI.)

³ That this interpretation is practically necessitated and confirmed by experience is shown by the previously discussed criticism of pragmatism. The actual attitude taken toward the theory of evolution is that it, like other theories and laws, is only tentative, although it has a high degree of probability. Pragmatism, as derived from it, neither presupposes its absolute truth nor the absolute truth of itself; rather, *the truth of pragmatism is conditioned in that (1) it shares the tentative character of evolutionary theory, and (2) is implied by it.*

⁴ A typical illustration, and in this sense demonstration, is given by non-Euclidean and Euclidean geometry. The truth of the propositions of these systems is conditioned (1) in that they are implied by the original postulates (not proved), and (2) in that experiment cannot decide between them. Each is, therefore, tentative in its ontological reference, but either may be true as revealing reality as it really is, although which is true in this sense cannot be shown.

⁵ These characteristics are important because of their bearing on the postulates of a self-critical system.

that term's connotation of internally contained evidence. Thus the previous assertion of a distinction between psychological and logical self-evidence is now justified. The criterion for that distinction now appears as itself a logically self-evident principle standing that test, its own, which psychological principles imply they should stand, but fail to, and also that test (II), which, by conforming to I, stands its own test.

Returning now to the main line of discussion, the result up to the present point is the confirmation of our supposition that an epistemology must be based on presuppositions, *i. e.*, on principles assumed and not proved, briefly, on postulates, with these awaiting confirmation. But this is our fourth method.¹ The further result is, that, while the confirmation must be of the kind that the postulates set up give a self-critical system, there are two criteria of logical self-evidence, in lieu of the failure of the psychological criteria, by which the postulates can be tested for their individual self-criticism. Finally, there is a principle which guarantees, since it submits to these two criteria, that the postulates may be true although not proved. As regards the system, then, while each postulate will thus be grounded by itself, nevertheless, each, as a proposition of a system self-critical as a whole, will be implied by each of the others and by the system as a whole; conversely, each will be applicable to each and so, collectively, to the system as a whole, and the system as a whole both to itself and to each. *These demands form the fourth characteristic of a system which is self-critical*, and must be stated, although a satisfactory and complete demonstration that they are fulfilled by the postulates subsequently submitted is impossible within the limits of this paper. Their fact and justification is discovered by simple inspection of the general demand that an epistemology, by its very purpose, must be such as will apply to itself. Accordingly, it must *incorporate in itself its own presuppositions, and yet derive them from itself*, for then, and then only, will it presuppose only itself. The endeavor to comply with this demand introduces some new considerations and leads to the discovery of further 'dimensions' of self-criticism. The method for

¹ See p. 619.

doing this is simply the experiential one of withdrawing, by analysis and inspection, certain presuppositions from the field of the tacit to that of the explicit.

The point has already been made clear that, if there is to be an epistemology, it must be stated in propositional form, and this has been both distinguished from and yet connected with that general necessity of postulating which results from certain evolutionary considerations.¹ This specific necessity has, now, important implications. Viewed from the standpoint of the psychology of reasoning there are in the propositional formulation of a body of knowledge four aspects involved : (1) words or symbols, which are perceivable, conceivable, etc., but which formulate (2) the meanings or subsistents ; (3) existents, known and denoted, and (4) conscious events, which may take place in some knowing individual, and have as their content the symbols, the meaning, or the existents, any or all. Of the many and complex relationships herein involved only those which are germane to the main purpose of the paper need be discussed. By virtue, now, of (2), the meaning or subsistents, there is, on the one hand, a certain logic used in presenting the knowledge propositionally, but, on the other, in a theory of knowledge, there is a certain logic presented and defended. Accordingly, firstly, *it is a demand both self-imposed and to be met by the theory, in order that it may be self-critical, that the logic defended and accepted be such as will allow of a (its own) formulated propositional statement (1).*² But further there is a psychological side (4) and also an ontological, (3) and (4), to an epistemology ; for conscious events are existents, and it is the purpose of an epistemology to state in propositional form, (1) and (2), the relation of knowledge, as an existent, to its object, whether this be physical, subsistent, or psychical, *i. e.*, knowledge in general, including epistemology. Therefore, secondly, *the logic defended and accepted must be such as will allow*

¹ See p. 618.

² Analogously, if with Professor Dewey we argue logically the purpose of logic, then the logic thus derived must be such as will give the logic of the argument and of the purpose. Logic must thus account for logic, at least indirectly, and might as well directly. Compare also Professor James's attack on conceptualization, etc., by conceptual methods in his *Pluralistic Universe*, 1909.

of these relations themselves as well as of their propositional statement. Thirdly, error must be accounted for ; for error is a fact ontologically and psychologically, and involves certain logical relations. Therefore, in the final logic of the system the logic of error must logically find a place, and the admission must be made, in agreement with experience, and really to make the system further self-critical, that, while it may be true (cf. Postulate XI), also, by this very logic of error, the system itself may be in error and only tentative.¹ In summary, it may be concluded that the logic accepted must, then, be such as will account logically for logic, for ontology, and for psychology (truth and error in knowledge), and through these indirectly again for logic, and a similar statement, 'by symmetry,' can be made of ontology and psychology. Thus it is important to recognize that, since knowing (or knowledge), whether formulated or not, in error or not, aware of its own logic or not, reflective or not, is itself an ontological process, such an ontology is presupposed by a theory of knowledge as will account, when stated logically in propositional form, ontologically for ontology, for psychology, for logic and propositional formulation, and finally again for ontology. However, since the final and only expedient method of deriving and of presenting such a theory is that of propositional statement, which demands, of course, a certain logic, there must be such a logic, derived on an ontological basis, etc., and finally accepted, as will allow not only of this derivation and presentation, but also of these three aspects in their various relations.

Although, now, this logic in all its ramifications is too complex to be presented here, there are *three logical doctrines* included in it which must be briefly expounded. Previous discussions have already led up to two of them. *The first of these concerns the infinite ; both its implication and the possibility of dealing with it in a manner free from contradiction must be accepted.² The implication of the infinite regress appears in a number of places in connection with a self-critical system, but most notably in that such a system as a whole presupposes itself repeatedly.*

¹ Compare the definition of 'true,' p. 623.

² Cf. Russell, *Principles*, Chaps. IV, IX, XI, XVII, XLII, especially p. 349.

Two methods of dealing with an implied regress are conceivable, those, namely, of enumeration and of 'intension,' with the latter alone possible for obvious (psychological) reasons. To deal with the infinite regress by 'intension' means that the very law or principle in accordance with which a specific regress is implied or generated is known and stated in conceptual terms; there is, then, no necessity of dealing with it by enumeration. Indeed the discovery of the implication of the regress and the attempted demonstration that it somehow involves contradictions presupposes this 'intensional' method: *it* is presupposed by its own denial (as well as by itself). Now the discovery of an epistemology which presupposes itself is identical with the 'intensional' treatment, through a set of principles, for this special field.

The second doctrine to be accepted is that of the 'externality' of relations to their terms, briefly, the 'external view.'¹ This is, of course, opposed to the view that relations are 'internal,' which is made to mean a number of things, such as penetration of the term by the relation, with a resulting generation of an internal state, and so with what is variously regarded as modification, or the making or demanding of dependence, or likeness, or contradiction. Now of these two views it can be shown that the second presupposes its contradictory, the first, and the 'intensional' method: conversely the first is presupposed both by itself and its denial.² Thus, to illustrate, if it is held that the relation modifies its terms, then it is presupposed, both in order to state this view and to work it out, that the terms *to be modified* are first unmodified, and this must be statable in order to show the modification.³ But to do this is to use the method of 'intension,' and means that a relation can be stated correctly without considering the implied subordinate relations and without there being internal states. But this is identical with the view that relations are external to their terms, which means that a term is what it is, although related to other terms, and exists or subsists, even as a

¹ Cf. Russell, *Principles*, Chaps. XXVI, XLII, LI.

² An illustration of the applicability of the two logical criteria of self-evidence.

³ With modification insisted on, there is always, in the attempt to state it, its contradictory presupposed: for it is tacitly assumed that the statement, which is, of course, related to the modification to be stated, does not modify the modification.

related term, as if it were not related, and can pass in and out of relation to another term without being altered.

Now that this 'external view' is necessitated by a theory of knowledge in order that it should be self-critical is shown as follows: *First, every such theory presupposes that to know = to relate, in some sense.* Indeed, this is a principle which is presupposed both by itself and by its denial; for whether it is taken to mean that in knowledge relations, objects, etc., are discovered as they really are, *or* that objects unrelated objectively are by knowing related subjectively, etc., in every case there is stated the relation of knowledge to its object. But if now, secondly, it is made the purpose of an inquiry (an epistemology) to determine which one of these views expresses the real relation of knowledge to its object, a new clue is given by the discovery that *it is presupposed as a condition for the validity or success of the outcome of this inquiry that the knowledge so won is related to its object (all knowledge) without modifying it.* But this is a special case of the view that relations are 'external.' Q. E. D. Thus two demands come together; that to know = to relate is presupposed in any case; that 'to relate' must be interpreted in accordance with the 'external' view is presupposed by an epistemology; therefore it can be made a postulate for all (genuine) knowledge; in no case does knowledge modify its object, whether this consists of existents, psychical or physical, or of subsistents.

But further it is found, that, since other theories of knowledge must accept this same general definition of knowledge as = to relate or be related, but interpret this in accordance with the 'internal view' whereby to know is made = to modify, or to make dependent, or like, or contradictory, a fulcrum is furnished by which a system, itself rendered self-critical by embodying the 'external view,' not only can contradict, but can refute these opposed systems. Indeed they are already self-refuting as based on a self-refuting doctrine of relations. There is disclosed, then, another, *a fifth, 'dimension' of the self-critical character of a system; by its own postulates and the definitions derived from them it must anticipate and refute all external criticism.* This it will do if it is really self-critical.

The third logical doctrine which is presupposed by and must be incorporated in a system in order that it may be self-critical *is that of discontinuity*.¹ As a logical doctrine discontinuity, like infinity and relations, *a fortiori* concerns primarily subsistents, to which existents may or may not correspond. Thus an epistemology which presupposes itself does not mean an infinite series of psychical existents, but only of subsistents, and such a series is known conceptually, *i. e.*, by 'intension.' But relations are existent as well as subsistent; and that there are ontological and so subsistent discontinuities is shown by the experientially attained fact that, for example, theories, even the one herein presented, appear out of non-existence both in the phyletic and the ontogenetic psychical series. Accordingly, to be self-critical by way of accounting for its own origin, an epistemology must incorporate in its postulates such a logical principle, as, stated and defended logically, will account logically for *de novo* appearances at certain critical points in the ontological series, psychical, physical, phyletic, and ontogenetic.² To this doctrine of a real ontological discontinuity the objection may be raised that the fact that in the present state of knowledge discontinuities are treated of is due to our ignorance, and that in due time they will all be eliminated, as they have been in so many instances already. But in regard to this elimination there is much opportunity for confusion; for the inspection of certain typical cases of so-called elimination shows that it is identical with the introduction of hypothetical, ideal continuous processes, involving the variables time and space and motion, with which really discontinuous and irreducible qualities (of wholes) are correlated. This is the method of mechanics and of atomistic theories in general, and the elimination is only apparent, not real. The question is also one as to what induction shall be made from the history of scientific

¹ The term is employed here with that exact meaning which it has in pure and applied mathematics; *e. g.*, a function is discontinuous if the differential coefficient has two distinct values determined by the slope of the tangent to each curve where the discontinuity occurs. Cf. Russell, *Principles*, in various discussions of continuity.

² The same demand is made on the theory of evolution; it must be so formulated as to account for the evolution of the theory (cf. Baldwin, *Development and Evolution*, Chap. XVIII), and a self-critical epistemology proves to be simply an evolutionary theory so extended as to include and account for knowledge.

thought and from its present status, — universal continuity or some discontinuity. The latter position is herewith accepted, to be incorporated in a theory of knowledge, for the reason that it is presupposed in order to render that system self-critical in the following respects : (1) it enables a theory to account for its own origin, and gives an ontological basis, (2) for the fact of error, (3) for the inductively ascertained fact that success is the final criterion of knowledge, and (4) for the very necessity of induction itself, *i. e.*, of a merely ‘finding out,’ as the basal method of all knowledge.

The recognition, now, that these three logical doctrines are really presupposed by any theory of knowledge in order that it may accomplish its purpose, will go far toward making it possible to state the fundamental principles of a self-critical theory ; for only through them can a theory, as it is given its necessary propositional statement and defence, logically include those three aspects, logical, ontological, and psychological, which it must include in order to have meaning and agree with experienced facts. Thus, to illustrate, the two doctrines of ‘external relations’ and of the infinite as presented above, make it logically possible ; (1) that the set of propositions, which form an epistemology must take, should be symbolized ; (2) that the symbols should be related to and refer to (*a*) ideas, (*b*) subsistents, *i. e.*, the real propositions, etc., and (*c*) the existents, corresponding to these last ; (3) that the ideas should be related and refer to both subsistents and existents, *in each case without modification either way* ; and finally (4), that the ‘set’ itself, as consisting of real propositions (not merely of symbols), should be a conceptual treatment of that which logically or subsistently is an instance of the proper infinite.¹ Again, discontinuity, subsistent and ontological, and, of course, as formulated under the above conditions, makes it logically possible : (1) that an epistemology as a series of conscious events should arise *de novo* ; (2), and very important, that, as belonging to the ‘mode’ reasoning, it should ‘take place’ in accordance with certain ‘laws of thought’ peculiar to it, whether these are formulated or not ; and yet (3), by ‘external rela-

¹ See previous discussion, pp. 617, and 626, 627.

tions,' be a knowledge of that which does not follow these laws.¹ Further implications of these doctrines will be developed in presenting the bearing of the postulates which incorporate them. Preceding analysis has disclosed other principles which must be incorporated in a system in order that it shall be self-critical, and yet *it is a further aspect of the self-implied demand for self-criticism that these logical doctrines and these principles can only be postulated,*² *i. e., set up experimentally with the question as to whether they actually do give a self-critical system or not to be tested subsequently ; this position is demanded not only by the very logic which is incorporated by postulation in the system, but is confirmed by the history of epistemological systems in general.*

In accordance, then, with this point of view and guided by this introductory analysis, the following postulates are submitted as together forming the foundation for an epistemological system which will fulfill the requirements which have been expounded. *Psychologically self-evident these postulates need not be, but logically self-evident they are ; each applies to itself, i. e., presupposes itself materially, and each is implied by its own denial, and, although at first merely postulated, each may be true although not proved.*

*Postulate I. There must be postulates.*³

Comment : To postulate is necessary both for evolutionary reasons and because of the character of grounding, as previously shown. Further, if there were only knowledge and no error, there would be no necessity of postulating in the sense of experimenting. The fact of error necessitates, then, the attempt to

¹ The possible criticism, that by this scheme something is made intelligible only by using that which is itself unintelligible, presupposes that the so-called 'laws of thought' are the only norms of rationality and that that which does not follow them is unintelligible or even contradictory. But this begs the question at issue, and really presupposes the opposite view : for, to demonstrate unintelligibility is to make the unintelligible intelligible and rational.

² Freedom to postulate is given by consciousness of method : necessity of postulating is ultimately evolutionary, but is conditioned also by inherent trial and error method and by ontological discontinuity ; purpose is to serve as means to an end, ultimately vital ; method, = (a) experience suggests, (b) held experimentally ; result, = makes experience more congruous. Cf. Schiller, "Axioms as Postulates," in *Personal Idealism* ed. by H. Sturt.

³ For a definition of the term see pp. 618, 619, and 631 above.

discover the nature and norms of substantiation, etc., = epistemology, and yet this can be done only experimentally, — by postulating.

Postulate II. An epistemology must be self-critical.

Comment: The major 'dimensions' of self-criticism have already been expounded; certain minor ones, derivatives, are shown in developing the implication of these postulates. Self-criticism is a demand self-imposed by an epistemology on itself, and yet, by that very logic which a system postulates in order to be self-critical, this presupposition can be made only a postulate.

Postulate III. A theory of knowledge, which is by self-implication a knowledge of knowing, including itself, must not modify its object, viz., the knowledge (and its conditions, relations, etc.) known.¹

Comment: This is the condition for its success, *i. e.*, that it should be that real knowledge which it is its self-implied purpose and claim to be. This postulate is a special case of the 'external view' of relations. Generalized, it means that real knowledge in no case modifies the object, whatever this may be, which is related to the ontological knowing process; it therefore means realism, discovery, objects known as if they were not known,² and their free coming and going into relation with knowledge.

Postulate IV. Qualitatively new existents appear (de novo) at certain critical points both in the inorganic realm and in the phyletic and ontogenetic series, physiological and psychological, of the organic realm, and in all synthesis, real and ideal, of wholes out of parts or elements.

Comment: This is the postulate of an irreducible ontological discontinuity. It makes recognition of that condition which is presupposed for there being a real ontological advance and progress and increasing richness of diversity in 'things' and means freedom and teleology in just this sense. While it recognizes the actuality of a qualitative *ex nihilo* appearance, it is compatible with certain quantitative identities such as that of the conservation

¹ Hobhouse, *Theory of Knowledge*, accepts this postulate, p. 175.

² Here and elsewhere there are a number of points of agreement between my position and that outlined by Professor Woodbridge in his paper, "The Field of Logic," *Science*, Vol. XX, No. 514, Nov. 4, 1904.

of energy, but it means that these are not all; their meaning is limited by the fact of a real genesis. It accounts for error, and for the necessity of induction, of success as a criterion, of postulating.

The postulate refers only to discontinuities as the limits of continuous functions, and not to an absolute *ex nihilo* appearance; something precedes each new appearance. Thus, whether a monadistic¹ or some other view² of causation be taken, there is, in some practicable sense, a causal determination or functional connection to be granted. Thus we have,

Postulate V. In all de novo appearance, as well as in all continuous ontological change, there is an agent existing antecedent to, independent of, and yet determinative of the appearance of subsequent existents, whatever their character.

Comment: The view that relations are external to their terms is again made use of and is herewith applied to the causal relation.

*Postulate VI. The existents between two critical points or discontinuities are in certain respects sui generis, and, a fortiori, with their appearance, new objective laws of their behavior spring into existence; by definition each such continuous discontinuously-limited range of existents in any realm is a 'genetic mode.'*³

Comment: This postulate, together with the two preceding ones, implies that reality can be known as if it were not known.⁴ This is presupposed for an epistemology, and therefore for all knowledge, as the condition for the fulfillment of the purpose of an epistemology. The idealist objects to this with the claim that, since without knowledge there is no knowing, we can never know what reality would be like before knowledge had arisen and therefore without it.⁴ But this very claim, if it itself be knowledge, as it pretends to be, presupposes its contradictory, the very view, namely, that it criticises, and refutes itself; its

¹ Cf. Russell, *Principles*, Chaps. XLII and LV.

² An optional interpretation is possible, 'illustrating the point made on page 619.

³ I use this term in much the same sense as does Baldwin in his *Development and Evolution* (see Chap. XIX) and *Genetic Logic*, but develop its implications quite differently.

⁴ Cf. Woodbridge, *op. cit.*, reprint, p. 29 and p. 26 respectively.

contradictory, on the other hand, presupposes itself and is implied by its own denial.

Accordingly this postulate means that at some point in the progressing phyletic series (and, of course, in ontogenetic development), under certain definite conditions, cognition in its various modes arises, and that this is the case whether known subsequently or not; that, further, when rationalistic modes have arisen, following their own laws, of course, whether these be known or not, there can be known rationally, and as if not known, other modes, including the conditions for the appearance of knowledge, with each following its own laws. Thus there are recognized both the fact of, and some of the conditions for the solution of the epistemological problem.

Epitomizing, now, some knowledge of this kind which has been already obtained inductively, but which is now to be used deductively, we have,

*Postulate VII. In the organic series, both phyletic and ontogenetic, there appear, under fairly definitely ascertainable conditions, new existents, both physiological and psychological, which, though they do not arise, nevertheless persist and develop because of their direct or indirect (by correlation) usefulness and efficacy.*¹

Comment: This postulate together with VI means that with the appearance of the psychic modes new factors of adjustment, etc., such as organic selection, imitation, social heredity, etc., become operative; but inherent and operative in all of these 'modes of behavior' are the objective laws of trial and error and of selection through use and efficacy.² Accordingly, when reality makes itself known by bringing about the appearance of

¹In accordance with this and other postulates, notably III and IV, it is implied that existents are to be taken at their 'face value' and cannot be done away with by any so-called reduction, but that this is only a functional correlation with other existents, real or imaginary. The position is, then, one of naïve realism, though it is also quite compatible with the *discovery* of new existents by the penetrating methods of scientific investigation. The result is, then, that the conscious or psychical modes are to be accepted as essentially just what they are revealed to be by introspection. Thus our self-critical epistemology escapes in its ontology such doctrines as universal dualism, pan-psychism, subjective and objective idealism, and materialism, positions for which the unproved premises are disclosed by a slight analysis.

²Cf. Jennings, *Study of the Behavior of Lower Organisms*, published by the Carnegie Institution, 1904, and other books and articles by the same author.

these conscious modes, since with each mode the objective laws of that mode are operative, the method of discovery, of coming to know, both for other modes and finally for the knowing mode itself, is *a fortiori* the tentative one of trial and error and of selection through efficacy. This necessitation of tentativeness is supplemented by that which is conditioned by the ontological discontinuity in the existents known. This leads to,

*Postulate VIII. All knowledge of the objective laws of any mode, physical or psychical, and of its relations to other modes, etc., i. e., all the concepts of 'funded knowledge,' all the principles of proof, all the criteria of selection, even all the ideals and valuations as to the character of truth, arise and develop only in the tentative knowing process itself and must bear its character.*¹

Comment: This postulate means that epistemology, and indeed philosophy in any branch, is not different in kind from other ratiocinative knowledge; that all knowledge is tentative in some degree and in some respects, though in what can be known, not with absolute certainty, but again only tentatively; that none is known to be absolute, not even the ideal of absolute knowledge nor any content which may be given to it;² and finally, that absolute truth is not requisite to action, but that action demands only the attempt to know,—trial and error,—postulates.

It may be said, then, that, while truth always concerns knowing and so action, directly or indirectly, this does not constitute the whole of truth; for knowledge is itself an ontological process, psychical at least in part, related to something known, either existents, physical or psychical, or subsistents, in such a way as not to 'modify' them. This leads to,

Postulate IX. It is of the very nature of consciousness in its cog-

¹ This is the fundamental principle of pragmatism, but its acceptance does not carry with it the acceptance of the whole list of pragmatic developments. However, it furnishes the pragmatist with an anticipatory refutation of absolutism at every turn. Compare the previous discussions, pp. 615, 616, and 623 with note. An analogous principle holds good of all æsthetic and ethical values.

² This postulate is, therefore, quite compatible with subsequent postulates and with the principle applying to all of them that 'truth is independent of proof'; i. e., knowledge, any particular knowledge, may be (absolutely) true although not known to be; but knowledge or assertion that this is the case, in any specific instance, even in this assertion, can be only tentative.

nitive modes to transcend itself, and in some cases to know (be related to) that which is very different from itself in nature.

Comment: Transcendence is presupposed by every ontology and every epistemology, even by solipsism; for every epistemology presupposes some other object of knowledge than simply itself, although this 'object' must ultimately include the epistemology. Reference of consciousness beyond itself to something different in kind is not done away with by merely nominating all things a psychism, a self, etc.; for then these are made *constants* which accordingly can be eliminated with the original differences between physical things and individual consciousness, etc., still remaining.

As the complement of IX we have,

Postulate X. There is a real transcendent ontological process which 'works' and progresses independently of that knowledge of it which it itself produces and which is itself ontological.

Comment: This is again a realistic postulate incorporating 'discontinuity' and the 'external view' both in the causal and in the knowing relation. It is an extension to all knowledge of the presupposition recognized by III. It recognizes that at a certain point in both the phyletic and the ontogenetic series psychical modes arise (by discontinuity) while physical ones remain. Neither the object known nor the knowing itself is altered by being related each to the other; or, if alteration be insisted on, the *equivalent statement* can be made that the object is altered by becoming known as if it were not known, and that the knowing is altered by being a definite knowing event with a specific content and not some other.¹ As a further extension of the presupposition stated by III, and stating a further condition for the success of an epistemology we have,

Postulate XI. There is a simple, direct (real) knowledge of the transcendent prior to the reflective knowledge that this is so and prior to that reflective knowledge which, as = science and philosophy, extends our knowledge of transcendent processes, even of the knowing process itself.

¹ Again the doctrine of 'external relations' is used. A consistent (?) and real modification theory is always based on the 'internal view,' and so presupposes this, its contradictory, based on the 'external view.'

Comment : This means that we can know in some cases without knowing that we know. That there should be (correct) knowledge in some respects in the earlier stages is presupposed in order that there may be genuine knowledge in the later and derived stages ; and where distinctions are not yet made, there distinctions may nevertheless exist, to be subsequently discovered.¹ Just as, if error were non-existent, there would be no necessity for substantiation, but since, with error a fact, substantiation and the discovery of its norms are necessitated, so, without original truth, there would be no possibility of substantiation, even of the hypothesis that there is no truth. Tentativeness characterizes both the reflective knowledge (opinion) about other knowledge, *and* this 'other knowledge,' but both may be true (in certain details), since 'truth is independent of proof.'

Once again, then, the principle of the 'externality of relations' is recognized as the condition for there being real knowledge, both original and derived. Ontological discontinuity accounts in part for error and demands success as the criterion of truth ; but now, conversely, the transcendent's independence is demanded as the condition for success, *i. e.*, as the condition for real knowledge. Accordingly we have,

*Postulate XII. The transcendent ontological process, which, in its progressive unfolding, is the ground for the appearance of knowledge, is, through its independence of that knowledge, the ground of its validity = success.*²

Comment : That this is the case is especially clear in the instance of a prediction awaiting verification. It results from this postulate, that, while success is the criterion, it does not constitute the nature of truth. Success or satisfaction is of two kinds, individual and 'over-individual' or social. In the former case success may, in some instances, verify itself in that a satisfaction is derived from an assumption, tacit or explicit, that an 'idea' is satisfactory, *i. e.*, is true ; this = belief ;³ *but even this demands*

¹ The contradictory of this last principle is the basal postulate of Radical Empiricism and of positions like Ernst Mach's.

² Cf. my four articles on "The Ground of the Validity of Knowledge," *Journal of Philosophy*, etc., Vol. III, pp. 197-208, 257-266, 309-317, 371-380.

³ Cf. the previous discussion of psychological self-evidence.

independence, namely, of other assumptions by other individuals. For a universal 'over-individual' success,¹ then, a universal independence is presupposed, and this is stated in the postulate of a transcendent. This postulate applies to itself; for it implies that the postulated independence of knowledge includes independence of the postulation, or of the belief in the existence of that which is postulated. Not only is the object not modified by the knowledge of it, but, conversely, this independence makes it impossible that that success which is of the type either of the immediate contact with reality given in perception or of processes which lead to such contact should be anything more than the criterion of truth. *Truth exists when an object is known as if it were not known*; then there is real and genuine knowledge. If all existents, including knowledge itself, and all subsistents were known in detail, in their relations, etc., in this way, although by conceptual methods, then would knowledge be perfect, *i. e.*, complete and accurate. Accordingly we have,

Postulate XIII. The development and increase of knowledge in extension and in accuracy is identical with the approximation to and implication of an ideal limit of perfect knowledge.

Comment: Thus the ideal is implied, but it is subject to a two-fold tentativeness; for (1) the ideal itself and its definition, and (2) any content thereby denoted, arise and develop only in the tentative knowing process itself² (cf. VIII). And yet any part of all this knowledge, ideal, definition, or content may be absolutely true³ although not known absolutely to be so, for 'truth is independent of proof.'

Such an ideal necessitates the endeavor to work out a theory of knowledge, and this theory must account for error and for tentativeness; but it must accordingly grant that these may apply

¹ The psychological modes both demand and make possible that there should be one consistent 'over-individual' system of truth as the most useful and efficient means of survival in that inter-individual, social working which they also make possible and actual.

² It is always impossible for the absolutist in working with the concept of absolute truth to do other than either make the ideal, its definition, and its content tentatively tentative or make a tautologous and *useless* definition. Cf. the self-refuting criterion of absolute truth, pp. 616 and 623.

³ Cf. the definition, just above.

to itself, even to that ideal of a perfect knowledge which it must formulate, and of whose content it forms a (tentative) part. Quite analogously it must discover and account for its own method and determine whether this is different from that of other knowledge or not. The result, given by induction from the various theories of knowledge, is that the latter is the case, with the difference that epistemology can use logical criteria of self-evidence where other bodies of knowledge need not. All knowledge, including epistemology, must be based on induction in the broad sense of the term as a finding-out, supplemented by a guessing, a postulating. But epistemology can justify this, by

Postulate XIV. The inductive procedure is necessitated by the ontological discontinuity of the progressing transcendent process.

Comment : Deduction is accordingly limited ; it must always follow or await on induction and tacit or explicit postulation and stand ever ready to find that its results fail of confirmation, — because of discontinuities. These may of course be subsequently bridged over by induction, and the results then used deductively.

The question then arises as to what is the relation of the known laws of each mode to those of the others, or, objectively, of each mode to the others, and this becomes especially important when it concerns the knowing of other modes by the rational mode, reason. The presupposition in any case¹ is that by reason, which as an ontological process follows its own laws whether these are known or not, modes following other laws can be known. This is really the postulate of rationality, which, of course, conditions the possibility of any epistemology, even this one. It means that it is presupposed by an epistemology that the rational as well as the irrational and non-rational and their relation to each other can be known rationally.² The result is, on the one hand, that both the limitations and character and yet

¹ For this is presupposed in the attempt to deny it, in the position, namely, that causation, relations, etc., are contradictory and so only appearances, since it is thereby tacitly assumed that that which is contradictory from the standpoint of the laws of reason can nevertheless be known in a manner free from contradiction by reason using those laws.

² See Höfding, *Problems of Philosophy*, pp. 114, 131, and other places.

extended applicability of the 'laws of thought' must be recognized,¹ and, on the other, that the meaning of rational must also be made wider so as to include other logical principles than these 'laws.' Thus we shall finally have in a propositional statement (an epistemology) logic accounting logically for logic. Now in order that there should be this knowledge of all the modes (including the rational mode) and of their relations to each other, and of the principles underlying these relations, the logical doctrines of infinity, of discontinuity, and of 'external relations,' especially the last two, are presupposed. In its most general form as involving both this logic and the 'laws of thought' this presupposition may be stated as

*Postulate XV. As concerns formulæ and laws and their relation, and, therefore, supposedly, the relation of different modes, certain laws are peculiar to certain modes, those for the 'higher' having no application in some cases to the lower modes, and conversely, but those for the 'lower' are not invalidated by those for the higher, while those for the higher are not constructed by analogy to those for the lower, although in some cases certain formulæ or laws are common to a number of modes.*²

Comment: Thus it is possible for a theory of knowledge, by the very logic which it presents and defends rationally in a propositional statement using the 'laws of thought,' both logically to have this propositional form and yet logically to have an ontological reference, logically to be in error, and logically to know³ the doctrines that made all this logically possible. By this postulate, itself a postulate of the system, the system as a whole is to be interpreted; and since the logic which it involves demands postulates, it both recurs to and meets the demand of Postulate I, and so 'closes' the system.

This, then, completes the set of postulates which are necessary and which suffice to constitute the foundation of a self-critical theory of knowledge. Although explicit attention has not been

¹ Cf. Sidgwick, "Applied Axioms," *Mind*, N. S., Vol. XIV, pp. 42-57.

² Cf. Baldwin's "Axioms of Genetic Science," p. 323, in *Development and Evolution*; also my own article, "The Physical Basis of Conduct," *Psych. Bull.*, IV, 9.

³ Thus all the introductory discussion finds a place in the system.

given to ethical and æsthetic considerations, the set as it stands is capable of bringing into itself these valuations along with those others which it does take account of. The system as it stands is a propositional statement of an ontology as well as of an epistemology, and this it must be, since cognition and valuation are ontological processes. But that it is an ontology derived through and from epistemological considerations is perhaps its chief value rather than otherwise. Both as an ontology and an epistemology, and without losing the characteristic of self-criticism, the system can be presented descriptively as an Evolutionary Realism and Empiricism.¹ *Paradoxically, perhaps, it means that Realism is the most rational of all systems.*

In conclusion it can only be asserted,² because of the limitations of space, that the system is self-critical in the various ways which it itself implies it must be; it does apply to itself in whole and part, and is able to refute external criticism,³ and yet, while, by its own logic, it can claim to be only tentative, on the same grounds it may possibly be more, since 'truth is independent of proof.'⁴

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¹ Cf. the generally similar position taken by Woodbridge, *Science*, N. S., XX, and by Höffding, *Problems of Philosophy*, Chap. II, especially p. 94.

² It is my purpose to submit the demonstration in a subsequent paper or papers.

³ This means, as it may be *modestly* asserted in accordance with the logic of the system, that, just as each postulate is presupposed (materially) both by itself and its own denial, and likewise the 'logical doctrines,' so also is the system as a whole presupposed both by itself and its own denial (in other systems); it is thus logically self-evident in whole and part.

⁴ See Postulate XI and Comment.